

CLAIM AMENDMENTS:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) ~~[[A]]~~An enhanced network management system comprising:
a ~~first~~ connection to a wide area network, ~~wherein the~~ [[first]] connection [[is]]
configured to [[automatically]] receive management information via a plurality of
virtual [[connection]] connections from a corresponding plurality of data
communication [[node]] nodes;
wherein each node is configured to monitor equipment fault information for customer
owned equipment and service level information for provider owned connections;
wherein each data communication node couples a particular local area network to the
wide area network;
wherein the management information transmitted from each of the plurality of data
communication nodes includes service level information for a transparent
connection between the local area network associated with the data
communication node and the wide area network, the transparent connection being
intermediate between the wide area network and the local area network, the
transparent connection carrying encapsulated data traffic between the local area
network and the wide area network, the management information further
including equipment failure information for a bridging node configured to
generate the encapsulated data traffic;
wherein the management information allows network outages caused by customer
equipment failures to be differentiated from service provider events.

2. (Previously Presented) The network management system as recited in Claim 1,
wherein the transparent connection is a Digital Subscriber Line (DSL) connection that carries
Frame Relay packets encapsulated according to a DSL protocol, and wherein the management
information relates to encapsulated frame relay packets communicated between networks.

3. (Original) The network management system as recited in Claim 1, wherein the management information is according to a Simple Network Management Protocol (SNMP).

4. (Original) The network management system as recited in Claim 1, wherein the transparent connection is an intermediate network to the wide area network and a local area network.

5. (Currently amended) A network management system comprising:
a data network report collector for providing analysis of management information, providing notification of equipment failures, and providing administration of service level agreements for customers; and
a data router having an ~~a first~~ interface coupled to a wide area network;
wherein data ~~automatically~~ collected via the ~~first~~ interface includes the management information regarding a service level for a plurality of provider owned transparent connections for carrying data traffic between a plurality of ~~of a first network for carrying data traffic between a~~ local area networks ~~network~~ and the wide area network;
wherein the transparent connections are situated between the plurality of local area networks and the wide area network; and
wherein the management information further includes equipment fault information for a bridging node configured to transfer the data traffic to the wide area ~~first~~ network.

6. (Canceled).

7. (Previously amended) The network management system as recited in Claim 5, wherein the data traffic is communicated between the local area network and the wide area network according to a first protocol and the bridging node encapsulates the data traffic from the local area node according to a second protocol.

8. (Original) The network management system as recited in Claim 7, wherein the first protocol is a frame relay type protocol and the second protocol is a Digital Subscriber Line (DSL) protocol.

9. (Original) The network management system as recited in Claim 7, wherein a second node de-encapsulates the data traffic and transmits the data traffic to the wide area network.

10. (Original) The network management system as recited in Claim 9, wherein the second node is a Digital Subscriber Line Access Multiplexer (DSLAM).

11. (Currently amended) A method comprising:
~~automatically~~collecting management information for a transparent connection carrying
encapsulated data traffic;
identifying equipment failure information using the collected management information
~~collected to identify equipment failure information; and~~
separately identifying service provider service level information using the collected
management information ~~collected to identify network service provider service~~
~~level information~~
~~wherein the transparent connection is a Digital Subscriber Line (DSL) connection~~
~~between a local area network and a wide area network~~
presenting the service level information and detected equipment failures to a customer to
allow the customer to differentiate between network outages caused by customer
equipment failures and provider service events.

12. (Original) The method as recited in Claim 11, further comprising:
presenting the service level information to a customer.

13. (Original) The method as recited in Claim 11, further comprising:
providing notification of a detected equipment failure.

14. (Canceled).

15. (Original) The method as recited in Claim 11, wherein the transparent connection is an intermediate network between a local area network and a wide area network.

16. (Currently amended) A network management system configured to ~~automatically~~ collect management information for one or more transparent Digital Subscriber Line (DSL) connections carrying encapsulated Frame Relay packets between a plurality of local area networks and a wide area network, the Digital Subscriber Line (DSL) connections being intermediate between the plurality of local area networks and the wide area network.

17. (Original) The network management system of Claim 16, wherein the management information comprises equipment fault information of a DSL bridge and service level information of the one or more transparent DSL connections.

18. (Original) The network management system of Claim 16, wherein the one or more DSL connections are each coupled between a DSL bridge and a Digital Subscriber Line Access Multiplexer (DSLAM).

19. (Original) The network management system of Claim 18, wherein the DSL bridge encapsulates Frame Relay packets sent from a Frame Relay transmitter and the DSLAM de-encapsulates the Frame Relay packets prior to forwarding the Frame Relay packets to a wide area network.

20. (Original) The network management system of Claim 18, wherein the DSLAM encapsulates Frame Relay packets sent from a wide area network and the DSL bridge de-encapsulates the Frame Relay packets prior to forwarding the de-encapsulated Frame Relay packets to a Frame Relay receiver.

21. (Original) The network management system of Claim 16, wherein the network management system collects the management information via a Frame Relay network.

22. (Original) The network management system of Claim 16, wherein the network management system is configured to collect the management information according to a Simple Network Management Protocol (SNMP).

23. (Original) The network management system of Claim 16, wherein the network management system is configured to collect the management information via a virtual circuit from a data communication node coupled to at least one of the DSL connections.

24. (Original) The network management system of Claim 16, wherein the encapsulated Frame Relay packets are carried on a virtual circuit between a Frame Relay transmitter and a Frame Relay receiver.

25. (Original) The network management system of Claim 24, wherein the Frame Relay transmitter and the Frame Relay receiver are implemented as channel service unit/data service units.

26. (Currently amended) A network management system comprising:
a report collector for providing analysis of management information, providing notification of equipment failures, and providing administration of service level agreements for customers; and
a middleware server configured to ~~automatically~~ collect management information from a plurality of data communication nodes for a transparent Digital Subscriber Line (DSL) connection between a wide area network and a plurality of local area networks, each local area network being associated with a corresponding data communication node, the management information being collected for the transparent Digital Subscriber Line via a Frame Relay network, the middleware server being further and configured to forward the collected management information to the report collector.

27. (Original) The network management system of Claim 26, wherein the management information comprises customer equipment fault information and service level information of the transparent DSL connection.

28. (Original) The network management system of Claim 27, wherein the customer equipment is a DSL bridge that encapsulates Frame Relay packets.

29. (Original) The network management system of Claim 26, wherein the report collector is configured to display the management information to a user.

30. (Original) The network management system of Claim 26, wherein the management information is used to differentiate between customer equipment failure and a service level agreement violation.

31. (Original) The network management system of Claim 26, wherein frame relay packets are transparently encapsulated according to a DSL protocol and sent over the DSL connection.

32. (Original) The network management system of Claim 26, further comprising: a router coupled to the Frame Relay network and the middleware server.

33. (Currently amended) A method comprising:

~~automatically~~ collecting management information from a plurality of data communication nodes for a transparent Digital Subscriber Line (DSL) connection between a wide area network and a plurality of local area networks, each local area network being associated with a corresponding Frame Relay data communication node, the DSL connection carrying encapsulated Frame Relay packets between the plurality of Frame Relay data communication nodes;
differentiating between a network outage caused by customer equipment failure and a service provider service level event using the management information; and
providing differentiated management information to a user.

34. (Original) The method of Claim 33, wherein the management information comprises equipment fault information of a DSL bridge and service level information of the transparent DSL connection.

35. (Original) The method of Claim 33, wherein the management information is collected via a Frame Relay network.

36. (Original) The method of Claim 33, wherein the management information is collected via a virtual circuit from one of the Frame Relay data communication nodes, wherein the virtual circuit communicates according to a Frame Relay protocol.

37. (Original) The method of Claim 33, wherein at least one of the data communication nodes is implemented as a channel service unit/data service unit.

38. (New) The system of Claim 1, wherein each virtual connection operates in accordance with one of a simple network management protocol (SNMP) or a common reliable accounting for network element (CRANE) format.

39. (New) The system of Claim 1, wherein the provider owned connections comprise a Digital Subscriber Line (DSL) connection carrying encapsulated frame relay packets between the wide area network and the local area network.